

Diagenetic Interaction of Igneous Rock with Eolian Sandstone: Case Studies from the Huab River Basin, NW Namibia.

By

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The Huab Outliers of the Etendeka Flood Basalt (NW Namibia) provide well-exposed examples of the interaction between igneous rock and eolian sandstone. Progressive flooding of an ancient dune system by lava during Early Cretaceous led to the preservation of a number of dunes beneath the initial lava flows and as interlayers between flows. This, coupled with the presence of numerous igneous sills and dikes throughout the area, makes it ideal for the study of lava-sediment interaction.

The purpose of this study is to look at the degree and type of diagenetic alteration occurring in the sandstone as the result of igneous processes. A number of case studies were identified from previous field visits to look at various features within the basin: for example, compartmentalization of the basin by sills/dikes/lava and how this might affect fluid flow through the sediment; diagenesis along hot contacts and its associated reduction in porosity and permeability; and the effect and origin of hot fluids within the basin.

An AAPG-supported field season was recently undertaken to provide a more comprehensive collection of samples from each case study area. These samples will be processed using a number of petrographic and geochemical techniques to determine the origin and type of pore-filling cements and their effect on the sediment package. The Huab Outliers are an onshore analogy of the Kudu Gas Field where eolian gas-bearing sandstone is found as interlayers between basalt. It is proposed that details learned from this project might be directly relative to the Kudu and other such areas.